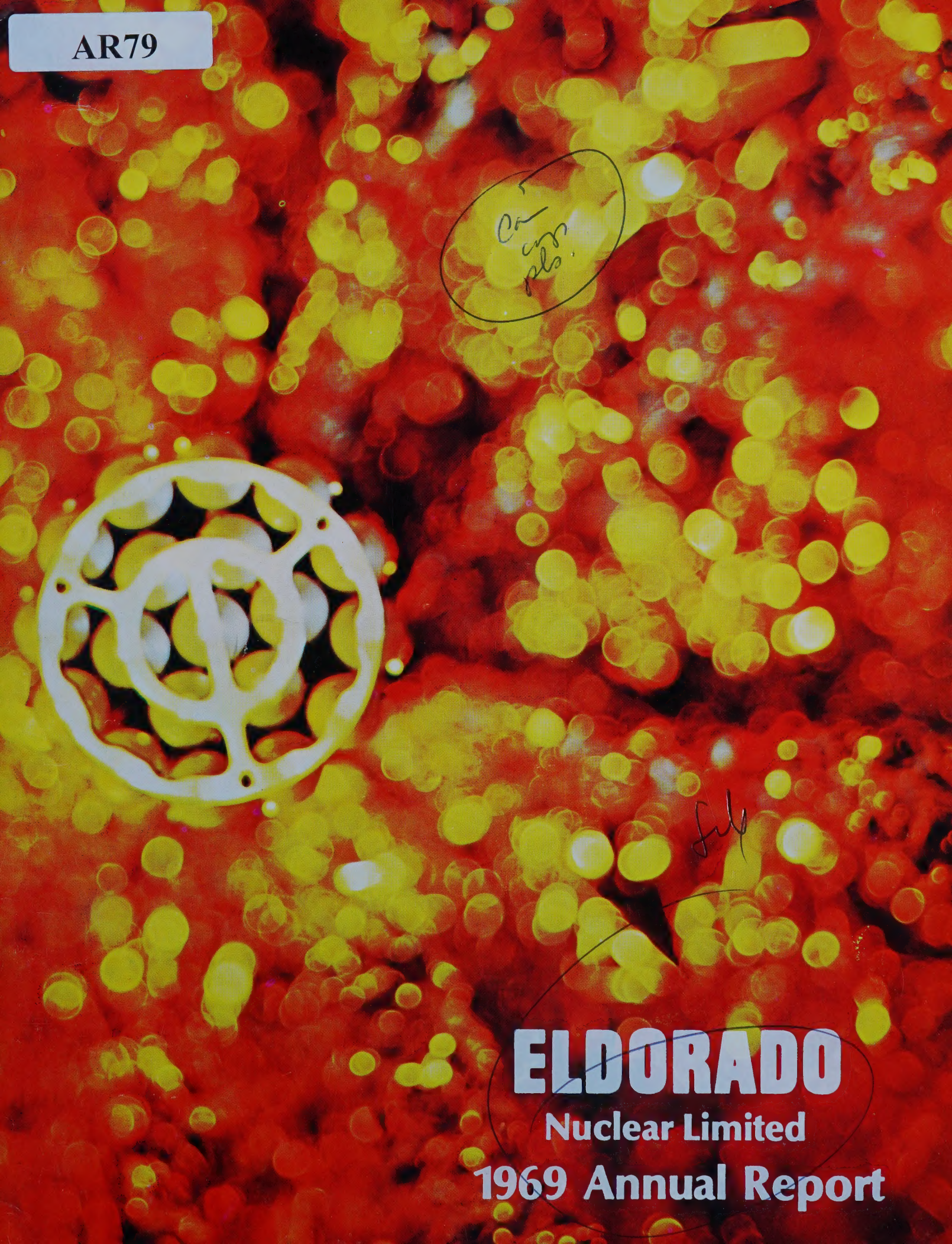


ELDORADO

Nuclear Limited

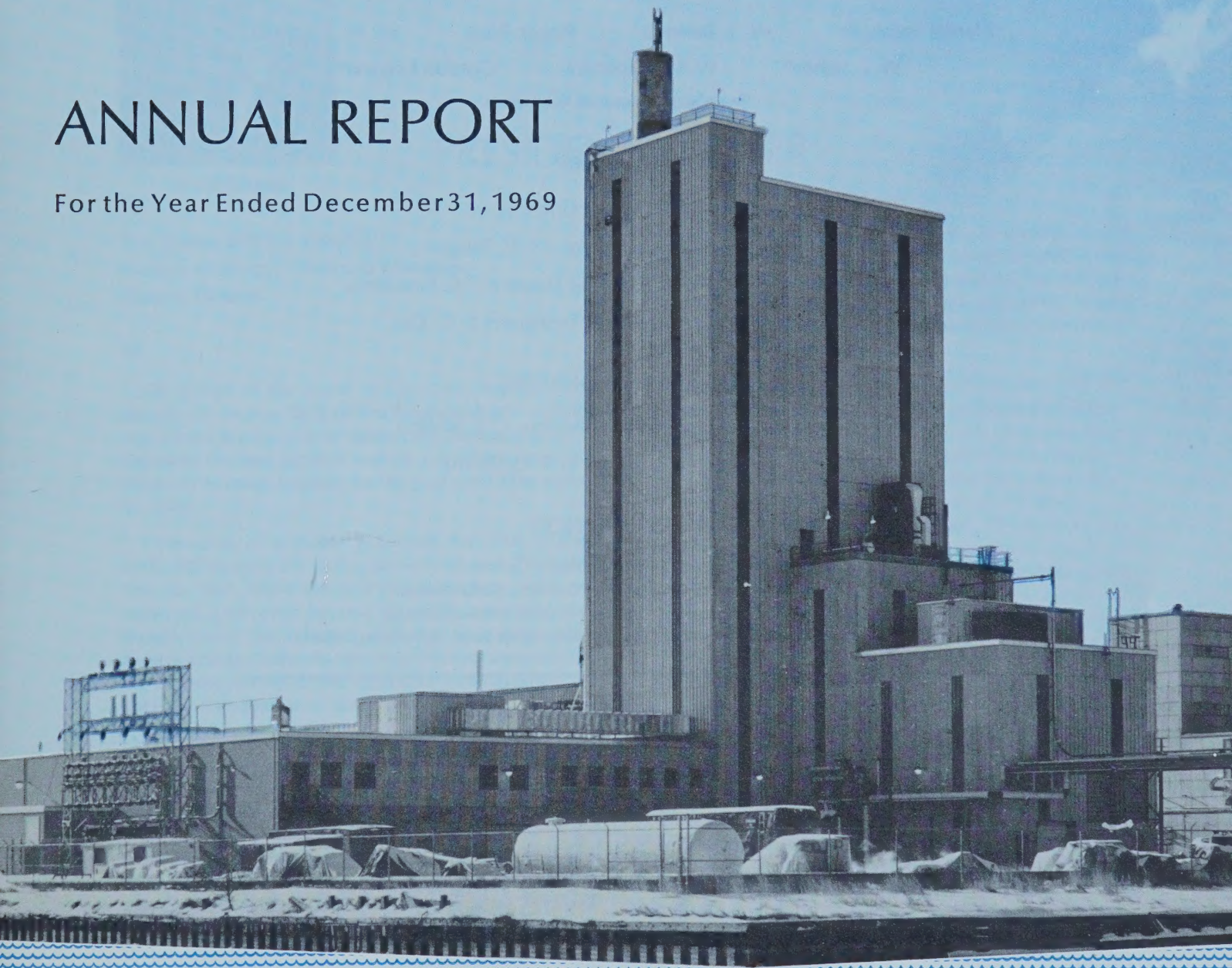
1969 Annual Report

ELDORADO NUCLEAR LIMITED

and Subsidiary ELDORADO AVIATION LIMITED

ANNUAL REPORT

For the Year Ended December 31, 1969



Eldorado's new Uranium Hexafluoride (UF_6) plant at Port Hope, Ontario, will begin operation in mid-1970.

ELDORADO NUCLEAR LIMITED

Head Office: Suite 800, 151 Slater St., Ottawa 4, Canada
General Administration Office: Port Hope, Ontario, Canada

DIRECTORS

Marcel Bélanger W. J. Bennett Roger Blais W. M. Gilchrist*
W. F. James* W. S. Kirkpatrick Gordon Lawson*

*Members of Executive Committee

OFFICERS

President: W. M. Gilchrist

Vice-President, Marketing — J. C. Burger

Vice-President, Administration and Finance — C. Baschenis

Secretary: R. C. Powell Treasurer: J. C. Orr

DIVISIONAL MANAGERS

Mining and Exploration Division: C. F. Smith

Refining and Research: G. F. Colborne

DISTRICT OFFICES

Refining and Sales: Port Hope, Ontario
Beaverlodge Mine: P.O. Box 7010, Eldorado, Saskatchewan
Metallurgical Laboratories: Tunney's Pasture, Ottawa, Canada
Western Purchasing and Employment Office: 10040 - 105th Street, Edmonton, Alberta

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ELDORADO AVIATION LIMITED

HEAD OFFICE: Suite 800, 151 Slater St., Ottawa 4, Canada
OPERATIONS OFFICE: No. 11 Hangar, Municipal Airport, Edmonton, Alberta

DIRECTORS

W. J. Bennett A. B. Caywood W. M. Gilchrist
P. L. P. Macdonnell R. C. Powell

OFFICERS

President: W. M. Gilchrist
Secretary: R. C. Powell Treasurer: J. C. Orr
General Manager: G. F. Frank

Eldorado Nuclear Limited Sales Agencies Abroad
Europe: N. V. Internationale Ertshandel "Wambesco", P.O. Box 1439, Westerkade 2, Rotterdam, Netherlands
Japan: Marubeni-Iida Co., Ltd. P.O. Box Central 595, Tokyo.

W. M. Gilchrist

PRESIDENT'S LETTER

The Honourable J. J. Greene,
Minister of Energy, Mines and Resources,
Ottawa, Ontario.

Sir,

On behalf of the Board of Directors, and in accordance with Section 85(3) of The Financial Administration Act, I have the honour to submit the Annual Report of Eldorado Nuclear Limited and its subsidiary company, Eldorado Aviation Limited, for the year ended December 31, 1969.

Production of uranium in Canada for 1969 totalled 8,915,000 pounds, about 9% above 1968, and 7% higher than in 1967 when the first increase since 1959 was recorded. Deliveries by one Canadian producer continued under the contract with the United Kingdom Atomic Energy Authority, the only contract now remaining of those written in the 1950's. This contract will run until the first quarter of 1972.

Only one company made deliveries to the Canadian Government stockpile. As a result, total deliveries to the stockpile were again well below the permissible limit for the year. Only two small contracts for Canadian uranium were written during 1969, and the spot sales were all for very small quantities. The amount of Canadian uranium covered by contract at the end of 1969 was approximately 73,000,000 pounds, some 7,000,000 pounds less than at the beginning of the year. Deliveries stretch from 1970 to 1983.

The Nuclear Power Situation

On the surface it would appear that nuclear power has received a major setback. Costs of construction in many instances in the United States of America have been much higher than expected. There have also been major delays. France has decided that the type of reactor she intended to use was not the most economical approach, and will adopt the systems developed in the United States. Britain is having corrosion problems and Canada is having heavy water and mechanical difficulties. The public in all countries are concerned about pollution arising from these plants, which creates difficulties in connection with siting.

However, careful thought and examination reveal that certain systems have been proven practical and economic beyond a doubt, and that if the planning, engineering, manufacturing and construction of the commercial plants had been as exhaustive as in the case of many of the prototype plants, much of the gloom and depression could have been avoided. The truth of this statement is demonstrated by the successes that have been attained and the confidence with which some industrial nations, particularly Germany and Japan, are proceeding with the implementation of nuclear power.

The delays and the technical problems noted have had a detrimental effect on the attendant industries — uranium mining and fuel fabrication — which will no doubt lead to very difficult situations later on, for the long-term forecast of total requirements for nuclear power has not changed to any significant extent. There is a tendency to reduce total figures for nuclear power usage in the United States of America for the 1970's, but in Europe, Japan and elsewhere, the figures have increased, and indications are that they will continue to increase above previous estimates. However, as yet these developments have not overcome the effects of the slow-down in expansion that has taken place in the United States during 1968-69. The result will be that the growth of nuclear power in Europe and Japan will reach maximum tempo just about the time the resurgence begins in the United States, complicating the situation further.

The urgency for the development of nuclear power is still with us, and is intensifying. The demand for electrical energy is growing at a pace much greater than was thought possible a few years ago, and the efforts being

made to satisfy this demand seem to be somewhat less than adequate. When the City of New York finds it necessary to invest a billion dollars in high cost gas turbine generation of electricity to take care of peak loads, and to float some of the units on barges in the city's harbour and the Hudson River, and major blackouts and brownouts elsewhere become more frequent, it is evident that the expanding requirement for electrical energy is not being met in a sound and orderly manner.

Uranium Exploration and Development

Due to the precipitous drop in the ordering of nuclear power reactors in the United States, many of the smaller companies of the satellite industries, both manufacturing and mining, that have based their investment on the assumption of a sustained development of nuclear power, are finding — and will find — themselves in financial trouble. Due to lack of current demand, the price of uranium has dropped to the point where uranium mining is no longer attractive as an investment unless a contract for a sizable quantity at an attractive price is firmly in hand.

I would expect to see the intensive pace of exploration in the United States and the exploration which was just beginning to develop in the rest of the Western world, slacken in 1970 and perhaps even further in 1971. This will inevitably have a very unhealthly effect when the next, and much longer and stronger, demand for nuclear power develops in late 1971 and 1972 — as it must if the growing demand for electrical energy is to be met at a reasonable average cost. The exploration and development of uranium reserves outside the United States have also been hindered by that country's policy, which places an embargo on uranium imports but permits exports.

The reserve in the United States has increased in a fairly satisfactory manner, but in relation to the effort put forth the results have been less than spectacular. Judging by the recent published estimates of production costs, it is questionable whether there has been any significant increase in that portion of the reserve that can be profitably produced at $8.00 U.S. or less. Outside the United States there has been virtually no increase in published reserves.

Summation

All this leads me to state again what I have repeatedly said in these reports over the years, that any nation or utility that is embarking on a major nuclear power program would be well advised to make sure that at least a major part of its needs for the foreseeable future is assured, since thirty years is now accepted as the life span of a reactor in most cost calculations. It must also be realized that the uranium mining industry must in the end be able to cover the total cost, including exploration, of producing a pound of uranium and make a reasonable profit on the dollar invested. If this cannot be done, the investment dollar will go elsewhere.

It would be sound procedure for a utility firmly committed to a sizable nuclear power program to have on its staff a person or group whose responsibility it is to become conversant with the uranium mining industry. This would enable the planning to be much more soundly based, and make it easier to avoid many of the pitfalls inherent in depending on the vagaries of the marketplace.

In spite of the gloomy atmosphere and the difficulties of the present, nuclear power continues to have great promise as a cheap source of energy, and the future is bright. But no development based on a sophisticated technique succeeds without a high standard of performance on the part of all the individuals involved, and this has been sadly lacking in a number of instances in the development of nuclear power.

Eldorado Operations

In 1969, for the first time since 1945, your company has recorded a loss, and a further and more substantial loss is forecast for 1970. However, the 1969 loss of $1,218,785 was slightly less than had been projected.

It was found necessary to reduce the output at the mine, and a reduction in the number of employees was allowed to take place by natural attrition. There are now 491 employees on the mine payroll, 246 fewer than a year ago. However, the company's long-term objectives of maintaining an adequate ore reserve, of improving its processing procedures, and of maintaining its worldwide market contacts, are still the predominant factors in the operation, and this, of course, has had a detrimental effect on the financial results.

Ore Reserves

During the year, 456,156 tons of ore were mined. A recalculation of tonnage and grade of reserves in the main mine indicates a slight reduction from the 1968 tonnage to 3,440,000, but in terms of pounds of U_3O_8, the reserve at December 31, 1969 was at its highest point in the history of the mine.

Refinery

Apart from the planned shutdown of the UO_3 circuit, the basic refinery operated normally during the year. Progress continued on the facilities for producing UF_6 and zirconium, two new fields of endeavour which the Company's expertise, techniques and basic plant make it uniquely qualified to undertake.

The uranium hexafluoride plant will start producing in mid-1970 as forecast, and firm orders are in hand for more than half the rated capacity for the last half of 1970 and for 1971. It is expected that the full plant capacity will be committed to firm orders before the end of 1970, and it is quite possible that existing plans for expansion may be implemented before the end of 1971.

Due to mechanical and metallurgical difficulties, it was not possible to bring the zirconium plant to full operation by April 1969 as forecast, and it was not until shortly after the end of 1969 that the plant became fully operative. However, this delay did not result in loss of sales, since, due to deferments in the atomic energy programs, markets did not develop as quickly as had been anticipated, and sales in 1970 will be considerably less than previously estimated. However, the long-term future of this metal which is very closely linked to the development of nuclear power, is bright.

Research

The Research and Development Division of your company continued in its work of improving recovery and process control in the various systems and by year-end, major progress had been made in improving recovery from the refractory material that now makes up a very large percentage of the Beaverlodge ore.

The volume of custom work done by the Division continued to grow. This work, as usual, covered several fields besides that pertaining to uranium.

Requirement to borrow funds

Reference was made in last year's Report to the Company's requirement to borrow up to a maximum of $16,000,000 during 1969. By reducing the scale of operations at the mine and by curtailing other expenditures, the Company's need for loans was reduced to $11,000,000. In addition to this amount which was borrowed from the Government of Canada to year-end, it is projected that the Company may need further such loans of about $16,000,000 during 1970. Firm contracts for the delivery of uranium in the period 1970-80 serve in large measure as collateral for these loans.

The original investment in Eldorado by the Canadian Government amounted to $9,246,877. Since then, funds paid in to the Receiver General in the form of dividends, redemption of shares, and income taxes have totalled $63,710,000. In addition, $4,045,000 has been contributed to revenue of the Province of Saskatchewan in the form of royalties, and the Company has supported municipalities by way of grants in lieu of property taxes to an amount of about $5,135,000.

Subsidiary Companies

Eldorado Aviation Limited, the Company's wholly-owned subsidiary, again provided air support to Eldorado's mining and exploration activities, and served the needs of the Company's other subsidiary, the Northern Transportation Company Limited. This latter Company showed significant growth in 1969, reflecting the burgeoning activity in Arctic oil exploration. Further growth is projected for 1970.

Management reorganization

In July 1969, a reorganization of senior management personnel was effected, with the aim of streamlining the organization, and at the same time strengthening the Company's marketing division.

Mr. J. C. Burger, formerly Vice-President, Refining and Sales, became Vice-President, Marketing, and Mr. R. M. Berry, formerly Manager, Refinery, became Manager, Market Research; Mr. G. F. Colborne, formerly Manager of the Research and Development Division, was appointed General Manager, Refining and Research; and Mr. C. Baschenis, formerly Director of Administration, became Vice-President, Administration and Finance.

Mr. A. R. Allen, General Manager, Mining and Exploration Division, left the Company in mid-year and was succeeded by Mr. C. F. Smith, formerly General Superintendent of the Division. Mr. D. D. Bell succeeded Mr. Smith as General Superintendent. Mr. L. R. Montpetit rejoined the Company early in the year as Assistant to the President for Transportation.

The Board again takes pleasure in expressing to all personnel its sincere thanks for their constructive and effective efforts during the past year.

For the Directors,

W. M. Gilchrist

President

Ottawa, Canada
February 27, 1970


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ELDORADO NUCLEAR LIMITED

and its wholly-owned subsidiary

ELDORADO AVIATION LIMITED

GENERAL REPORT

for the year ended December 31, 1969

This general report deals with the operations of both Eldorado Nuclear Limited and its wholly-owned subsidiary Eldorado Aviation Limited, for the year ended December 31, 1969.

Income

The Company recorded a net loss of $1,218,785 for 1969, the first loss experienced in the 24-year period since 1945. The main reason for the loss in 1969 was that sales were equivalent to only 20% of the Company's production of mine concentrates and although sales volume at $3,760,781 was higher than in 1968, trading profit proved inadequate to absorb corporate expenses for research, exploration and administration. Moreover, the production of yellowcake for inventory, coupled with the continuation of plant expansion at the Port Hope refinery, exhausted the Company's cash reserves and necessitated the borrowing of funds. As a result, net interest charges of $70,000 were incurred during the year, whereas in 1968, interest earnings contributed in excess of $1,100,000 to income.

Capital Expenditures

At the Port Hope refinery, an amount of $1,146,000 was expended in 1969 to complete the zirconium plant, and $7,031,600 was required for construction of the new uranium hexafluoride plant, which is scheduled for turnover in April of 1970. Capital expenditures at the Beaverlodge mine totalled $940,600, including $418,300 for mine and mill equipment and $491,500 for a reduced housing program for employees in Uranium City. Plans for 1970 include provision of $3,500,000 to complete the UF_6 production facility at Port Hope and approximately $965,000 for mine, mill and general equipment.

Open pit mining operations at the Bolger zone, east of the Fay mine. Photos courtesy D. M. Ward.

Mining and Exploration Division, Saskatchewan

Mining

Due to the uncertain short term uranium market outlook, a major decision was made early in the year to curtail production and related activities for the five-year period 1969-1973. The objectives underlying this decision were as follows: to produce U_3O_8 within forecast price ranges in the period; to reduce cash requirements in a period of high interest rates; and to still maintain the mine in such condition as to be able to take advantage of the upturn in demand when it comes. Accordingly, the decision was taken to confine production to the Fay orebody of the main mine, to proceed with rapid mining of the Bolger zone, to slow down the pace of development and delay the start of the Hab mine production to the latter part of 1971, and to shut down the Verna and winze sections of the mine. This program was carried out with a minimum manpower displacement by relying upon attrition of the workforce.

Production for the year, from 456,156 tons of ore, was 1,562,357 pounds of U_3O_8 in concentrates — a reduction of some 22% from the 1968 production of 2,001,648 pounds recovered from 626,615 tons of ore. Costs per ton milled increased by 16.5%, while the cost per pound increased by 8.5% over the previous year, reflecting both the lower throughput and escalating costs.

Comparative production statistics, not including custom ore treated, are as follows:

	Tons of Ore Treated	*Pounds of U_3O_8 Recovered*	*Average Recovery Pounds Per Ton*
1969	456,156	1,562,357	3.43
1968	626,615	2,001,648	3.19
1967	561,434	2,003,369	3.57
1966	511,446	1,687,501	3.30
1965	536,132	1,800,467	3.36
1964	522,148	1,837,029	3.52
1963	544,177	1,855,212	3.41
1962	563,580	1,959,788	3.48
1961	542,157	2,214,894	4.09
1960	625,127	2,454,400	3.93
1959	657,521	2,392,770	3.64
1958	676,354	2,507,663	3.71
1953-7	1,206,309	5,071,265	4.20
1953-69 inclusive	8,029,156	29,348,363	3.66

Reserves of proven, probable and pillar ore at year end stood at 2,322,200 tons grading 0.22% U_3O_8. If ore in the "possible" category is included, reserves reach 3,440,000 tons averaging 0.23%. These figures do not include the reserves of the Hab mine where development is proceeding on the basis of indicated reserves of 446,000 tons grading 0.22% U_3O_8.

Exploration

The 1969 field season was the first full season since the removal of the restriction on outside exploration which was placed upon the Company in 1961. A lack of financial resources precluded a substantial program in 1969, but the Company carried out a number of investigations in areas of Saskatchewan remote from the present mine and in the Watterson Lake area, N.W.T. No really positive results were obtained from this work, but radiometric and geochemical anomalies located are of sufficient interest to warrant additional work. No decision as to the extent or nature of an exploration program for 1970 has yet been taken.

The Operations at Port Hope, Ontario

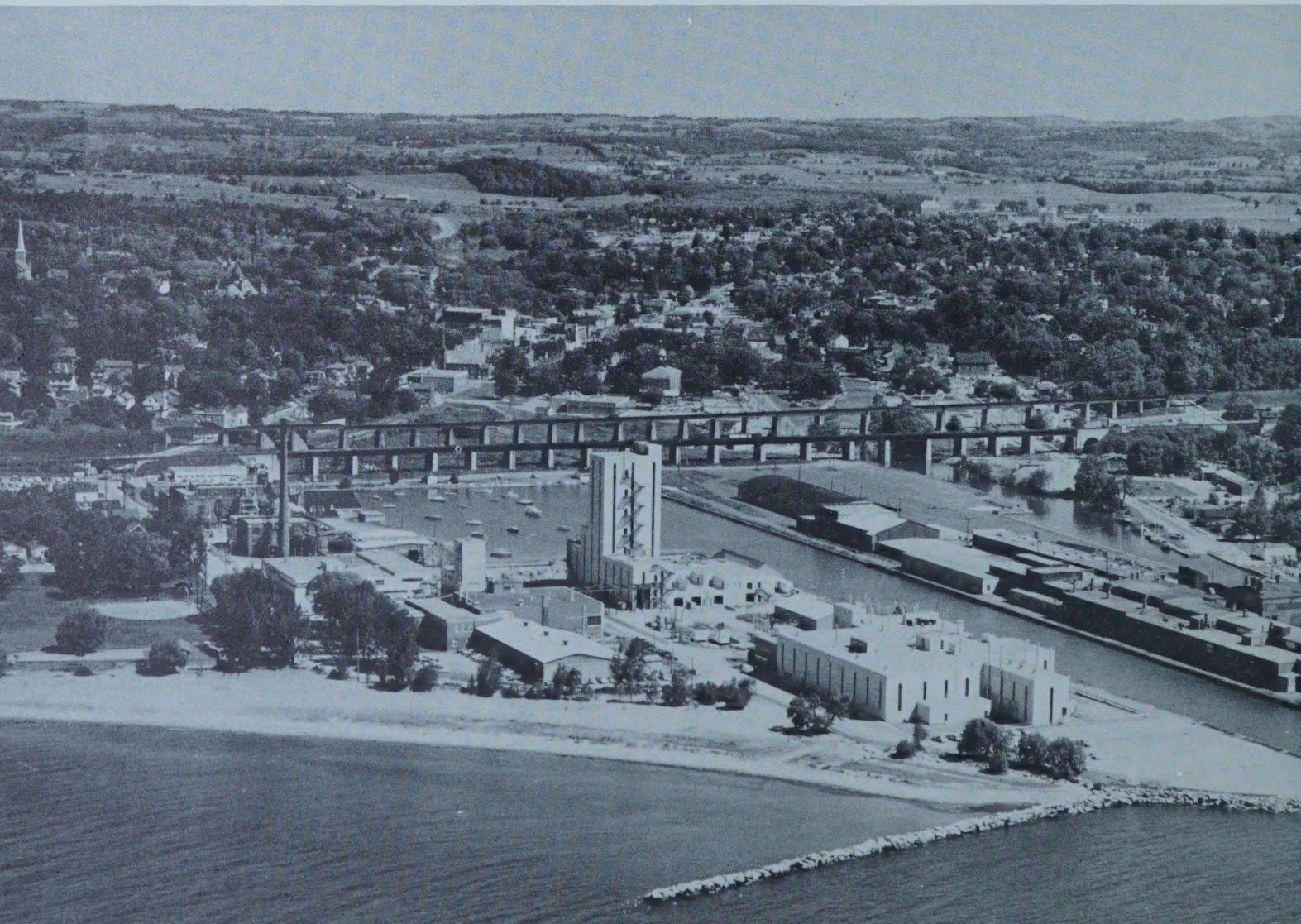
The uranium refining circuit for the production of UO_3 from mine concentrates remained idle throughout 1969, as planned. However, some of the facilities were utilized from time to time for the treatment of effluents from other parts of the operation, and the circuit will be reactivated in mid-1970 to provide basic feed to the UO_2 and UF_6 production lines.

The natural ceramic oxide circuit operated all year, and produced a record 246 tons of equivalent U_3O_8. All phases of the operation were routine, and with the increasing market for this specialized product, plans are underway to expand the circuit, including conversion of some parts of the operation from a batch to a continuous process.

General Report Cont. on Page 16

Stretching northward from the shore of Lake Ontario to the twin railway viaducts which are a landmark of Port Hope, Ontario, Eldorado's refinery has grown steadily since its inception in 1933. Most recent additions, seen in the foreground at the harbor mouth, are the new Zirconium plant and the Uranium Hexafluoride plant, which goes into operation in mid-1970. North of these are facilities for production of Ceramic Grade Uranium Dioxide; Uranium Trioxide, and Uranium Metal and Vacuum Casting.

Courtesy Peterborough Post Card Co. Ltd.



ELDORADO NUCLEAR LIMITED

Statement of Income and Expense

for the year ending December 31, 1969

(with comparative figures for the year ended December 31, 1968)

	1969	1968
Income:		
Sales — Company's products and services	$ 3,760,781	$ 1,451,279
Expense:		
Cost of products and services sold	3,499,415	1,116,737
Scientific research	696,436	590,230
Administration	421,345	380,393
Exploration	392,346	187,237
Marketing	130,646	124,563
	5,140,188	2,399,160
Net loss from operations	1,379,407	947,881
Other Income and Expense:		
Income arising from the ore procurement program	185,664	1,825
Interest and other non-operating income	267,461	1,133,032
	453,125	1,134,857
Less:		
Interest on loans from Canada (Note 4)	233,407	—
Other non-operating expense	59,096	8,116
	292,503	8,116
	160,622	1,126,741
Net Loss	$ 1,218,785	$ (178,860)

The accompanying notes are an integral part of the financial statements.

Eldorado Nu

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(with comparative figu

ASSETS	1969	1968
Current Assets:		
Cash	$ 478,309	$ *338,454*
Short-term bank deposits	—	*3,400,000*
Accounts receivable	1,187,012	*7,281,694*
Advances in respect of concentrates to be received	1,192,154	—
Concentrates and refinery products valued at lower of cost or realizable value	27,648,531	*18,634,801*
Operating and general supplies, at cost	3,548,543	*3,680,451*
Prepaid expenses	203,791	*358,064*
	34,258,340	*33,693,464*
Deferred accounts receivable in respect of concentrates delivered (Note 1)	5,950,125	*6,487,662*
Advances in respect of concentrates to be received in later years	932,847	*2,125,000*
	6,882,972	*8,612,662*
Investments and Loans:		
Investments in wholly-owned subsidiary companies, at cost (Note 2)	187,153	*187,153*
Employees' housing loans	128,132	*205,269*
Municipal Corporation of Uranium City and District, 5% to 8 1/4% debentures, maturing 1975-88	817,655	*765,317*
	1,132,940	*1,157,739*
Unamortized Expense:		
Pre-production and mine development costs	6,059,499	*2,627,729*
Excess of costs and expenses over sales of concentrates procured from other producers (Note 3)	1,281,504	*1,835,938*
	7,341,003	*4,463,667*
Capital Assets:		
Property, plant and equipment, at cost	71,989,058	*62,878,496*
Less: Accumulated depreciation	46,835,165	*46,210,680*
	25,153,893	*16,667,816*
	$ 74,769,148	$ *64,595,348*

The accompanying notes are an integral part of the financial statements.

Approved on behalf of the Board

W. M. GILCHRIST, *Director*

W. F. JAMES, *Director*

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E SHEET

31, 1969

t December 31, 1968)

LIABILITIES	1969	1968
Current Liabilities:		
Accounts payable	$ 5,128,582	$ 3,325,210
Loans from Canada due within one year (Note 4)	2,600,000	—
Advance payments in respect of concentrates to be delivered	2,016,278	1,128,917
	9,744,860	4,454,127
Advance payments in respect of concentrates to be delivered in later years	3,690,240	5,572,363
Deferred accounts in respect of purchase and development programs	1,708,318	2,357,750
Loans from Canada, (Note 4)	8,633,407	—
Capital:		
Capital Stock:		
Authorized — 110,000 shares of no par value		
Issued — 70,500 shares, fully paid	6,586,080	6,586,080
Retained earnings	44,406,243	45,625,028
	25,153,893	16,667,816
	$ 74,769,148	$ 64,595,348

I have examined the above Balance Sheet and the related Statement of Income and Expense and have reported thereon under date of February 27, 1970 to the Minister of Energy, Mines and Resources.

A. M. HENDERSON,
Auditor General of Canada

Eldorado Nuclear Limited

Notes to Financial Statements

1. Deferred Accounts Receivable

These are receivable under contracts which provide for payment to be made following shipment of products as required from time to time before 1975.

2. Subsidiary Companies

The assets, liabilities, income and expense of the Company's two wholly-owned subsidiaries, Eldorado Aviation Limited and Northern Transportation Company Limited have not been included in the financial statements of Eldorado Nuclear Limited.

The net expenses of Eldorado Aviation Limited are recovered from Eldorado Nuclear Limited and Northern Transportation Company Limited. The aggregate undistributed surplus of Northern Transportation Company Limited as at December 31, 1969 amounted to $8,364,766.

All three companies are Crown corporations as defined by section 76(c) of the Financial Administration Act, and as such each is required to report annually to the appropriate Minister in compliance with the provisions of that Act.

3. Excess of Costs and Expenses over Sales of Concentrates procured from other Producers

The balance of $1,281,504 will be amortized over the remaining deliveries of concentrates to be made to the United Kingdom Atomic Energy Authority, scheduled for completion by February 29, 1972.

4. Loans from Canada

As provided for by Vote L3b in 1968-69, Appropriation Act No. 1 1969, 1968-69 c.23, the Company was authorized to borrow from the Minister of Finance in the 1968-69 and 1969-70 fiscal years up to an aggregate amount not exceeding $22,000,000, subject to certain terms and conditions prescribed by the Governor in Council. At December 31, 1969, an amount of $11,000,000 had been borrowed, of which $2,600,000 is repayable in the calendar year 1970 and the balance by December 31, 1972.

5. Depreciation

Provision for depreciation during the year amounted to $706,929.

6. Government of Canada Stockpile Program

The Treasury Board with the approval of the Governor in Council, has granted authority for Eldorado Nuclear Limited to purchase and stockpile uranium bearing concentrates for the Government of Canada. At December 31, 1969 the Company was the custodian of concentrates thus acquired at a cost of $91,120,331. The cost of these concentrates, being chargeable to parliamentary appropriations, is therefore not included in the accounts of the Company.

7. Remuneration of Directors

Total remuneration of directors as directors, officers or employees of the Company for the year was $46,000.

ELDORADO NUCLEAR LIMITED

Statement of Sales and Costs of Uranium Concentrates procured from other Producers

for the year ended December 31, 1969

Sales of concentrates	$	12,474,378
Cost of concentrates sold		11,736,098
		738,280
Amortization of excess of costs and expenses over sales of concentrates procured from other producers (note 3)		552,616
Net income to Company operations	$	185,664

The accompanying notes are an integral part of the financial statements.

ELDORADO NUCLEAR LIMITED

Statement of Retained Earnings

for the year ended December 31, 1969

(with comparative figures for the year ended December 31, 1968)

		1969		1968
Balance at January 1	$	45,625,028	$	*45,446,168*
Net loss for year		1,218,785		*(178,860)*
Balance at December 31	$	44,406,243	$	*45,625,028*

The accompanying notes are an integral part of the financial statements.

AUDITOR GENERAL OF CANADA

Ottawa, February 27, 1970.

The Honourable J. J. Greene,
Minister of Energy, Mines and Resources, Ottawa.

Sir,

I have examined the accounts and financial statements of Eldorado Nuclear Limited for the year ended December 31, 1969. In compliance with the requirements of section 87 of the Financial Administration Act, I report that, in my opinion:

(a) proper books of account have been kept by the Company;

(b) the financial statements of the Company

(i) were prepared on a basis consistent with that of the preceding year and are in agreement with the books of account,

(ii) in the case of the balance sheet, give a true and fair view of the state of the Company's affairs as at the end of the financial year, and

(iii) in the case of the statement of income and expense, give a true and fair view of the income and expense of the Company for the financial year; and

(c) the transactions of the Company that have come under my notice have been within the powers of the Company under the Financial Administration Act and any other Act applicable to the Company.

Yours faithfully,

A. M. HENDERSON.

Auditor General of Canada.

ELDORADO AVIATION LIMITED

(Incorporated under the Canada Corporations Act)

Balance Sheet

at December 31, 1969

(with comparative figures at December 31, 1968)

ASSETS

	1969	1968
Current Assets:		
Cash	$ 45,761	$ 68,270
Accounts receivable:		
Eldorado Nuclear Limited	23,831	2,714
Northern Transporation Company Limited	6,567	16,410
Other	4,566	16,923
	34,964	36,047
Operating supplies, at cost	69,815	56,206
Prepaid insurance	26,043	27,755
Total Current Assets	176,583	188,278
Capital Assets, at cost:		
Aircraft, including major spare parts	1,010,103	997,257
Shop, hangar, and loading equipment, etc.	46,416	45,765
Office furniture and equipment	9,752	9,752
	1,066,271	1,052,774
Less: Accumulated depreciation	938,532	935,089
	127,739	117,685
	$ 304,322	$ 305,963

LIABILITIES

	1969	1968
Current Liabilities:		
Accounts payable	$ 21,925	$ 23,566
Capital:		
Capital Stock:		
Authorized — 50,000 shares of $1 each		
Issued — 28,006 shares, fully paid	28,006	28,006
Surplus	254,391	254,391
	282,397	282,397
	$ 304,322	$ 305,963

Approved on behalf of the Board

R. C. POWELL, *Director*

W. M. GILCHRIST, *Director*

I have examined the above Balance Sheet and the related Statement of Recoverable Expense and have reported thereon under date of March 6, 1970 to the Minister of Energy, Mines and Resources.

A. M. HENDERSON,
Auditor General of Canada

ELDORADO AVIATION LIMITED

Statement of Recoverable Expense

for the year ended December 31, 1969

(with comparative figures for the year ended December 31, 1968)

	1969	1968
Salaries and wages	$ 384,679	$ 342,201
Employee benefits	40,408	38,168
Supplies	195,885	187,804
Repairs	137,754	156,346
Hangar expense	48,191	43,524
Insurance	39,234	29,924
Depreciation	31,872	44,714
Landing fees	16,327	17,821
Travel	3,211	1,819
Miscellaneous	14,503	11,432
	912,064	873,753
Miscellaneous income	39,978	88,480
Net expense	$ 872,086	$ 785,273

Note: The above net expense was recovered from:

Eldorado Nuclear Limited	$ 736,895	$ 659,263
Northern Transportation Company Limited	135,191	126,010
	$ 872,086	$ 785,273

AUDITOR GENERAL OF CANADA

Ottawa, March 6, 1970.

The Honourable J. J. Greene,
Minister of Energy, Mines and Resources, Ottawa.

Sir,

I have examined the accounts and financial statements of Eldorado Aviation Limited for the year ended December 31, 1969. In compliance with the requirements of section 87 of the Financial Administration Act, I report that, in my opinion:

(a) proper books of account have been kept by the Company;

(b) the financial statements of the Company

(i) were prepared on a basis consistent with that of the preceding year and are in agreement with the books of account,

(ii) in the case of the balance sheet, give a true and fair view of the state of the Company's affairs as at the end of the financial year, and

(iii) in the case of the statement of recoverable expense, give a true and fair view of the expense of the Company for the financial year; and

(c) the transactions of the Company that have come under my notice have been within the powers of the Company under the Financial Administration Act and any other Act applicable to the Company.

Yours faithfully,

A. M. HENDERSON
Auditor General of Canada.

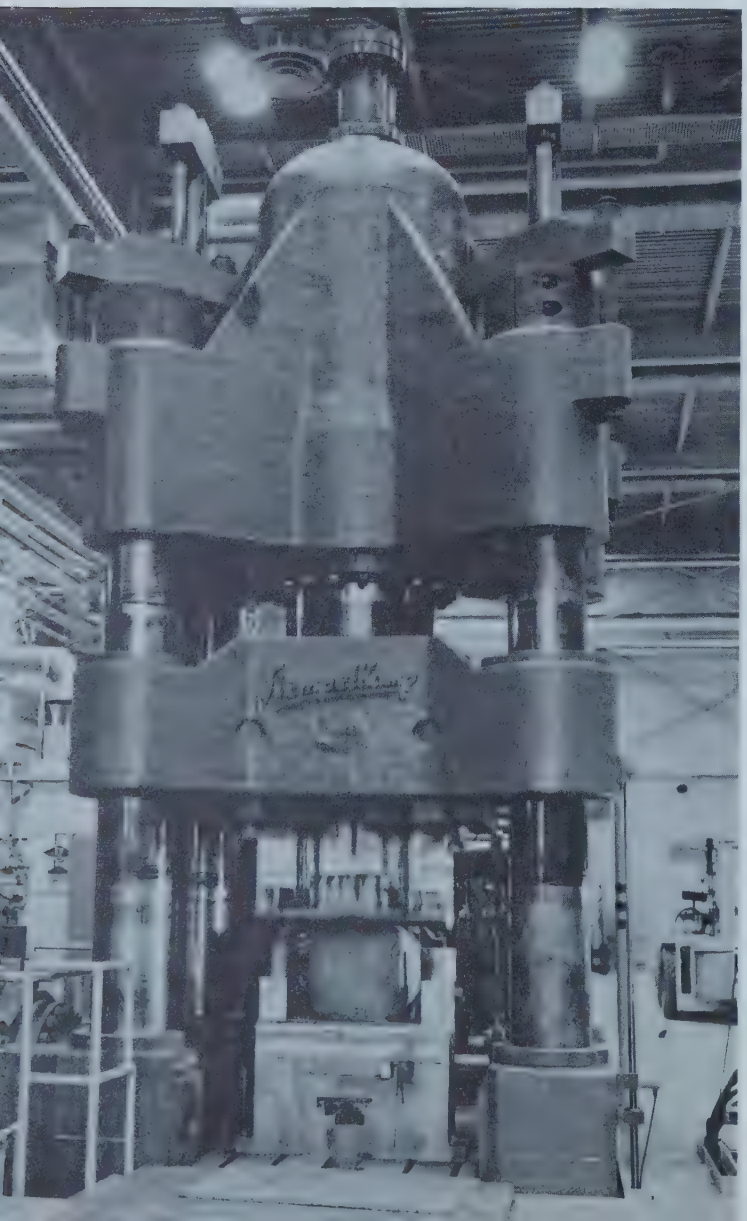
GENERAL REPORT

Continued from Page 8

The processing of uranium of various grades of enrichment was carried on throughout the year, for the production of high density oxide and alloy fuels.

A number of special projects associated with the development of nuclear fuels were undertaken, mostly for Atomic Energy of Canada Limited. These projects included the production of castings of enriched and depleted uranium metal along with uranium carbide and uranium silicide work.

The major disappointment of the Port Hope operation in 1969 was the prolonged start-up time required to bring the new zirconium plant into production. Many operating problems were encountered which required special solutions and, in some cases, extensive re-design of process and equipment. By year-end, sufficient on-specification metal had been produced for a favourable evaluation by fabricators. Full production capability in all parts of the circuit will be achieved early in the new year.



Sales and Promotion

The marketing staff pursued a vigorous program of sales promotion of uranium and zirconium products during the year, but, in the present depressed state of the market, sales of both products were disappointingly low. Only one contract for U_3O_8, with a Japanese utility, was concluded, the product to be delivered as UF_6. Two contracts for the conversion of customer's concentrates to UF_6 were signed with a Japanese and a Swedish utility and negotiations on a further substantial contract with a large U.S. utility culminated in a firm contract signed early in 1970. Negotiations for further UF_6 conversion business are progressing favourably.

As in the past, all sales of uranium or refining services for export are made subject to the applicable nuclear safeguards provisions.

During the year, the marketing division, in consort with a design and a fabricating company in Canada, surveyed market possibilities for the extensive use of depleted uranium metal in the manufacture of casks for the transportation of spent fuels to re-processing plants. It is anticipated that a significant market can be developed. The Company's metal casting facilities and its know-how in uranium technology make it admirably suited to meet the needs of this new and expanding field.

The marketing division participated and exhibited in the worldwide nuclear exposition, Nuclex '69, held at Basle, Switzerland, and in the Annual Conference sponsored by the Atomic Industrial Forum in San Francisco.

Research and Development Division

The major effort of the Division, with laboratories in Ottawa, involved the development of a low pressure alkaline leaching process to improve the treatment of the more refractory type of ore, which, at depth, is now constituting an increasing proportion of the Beaverlodge mill feed. This improvement will permit a return to recovery above the 90% range from this type of ore, where the extraction had fallen to an unsatisfactory level.

A substantial part of the Division's work in 1969 was necessarily associated with consideration of problems encountered during the prolonged start-up of the zirconium plant.

Volume of development and research work for outside companies increased slightly during the year, but

This towering giant is a forging press which shapes ingots of Zirconium alloys.

Tractor-trailer loaded with 14-ton (net weight) cylinder of Uranium Hexafluoride for shipment to enrichment plant. This is the type of container Eldorado will use for either highway or rail shipments when the new Hexafluoride plant begins production this year.

not to the extent which had been hoped for. This Division's well-equipped and well-staffed laboratories stand ready to assist Canadian industry — not just the mining industry — in a wide variety of developmental and research endeavours.

Uranium Procurement

Eldorado's function as the official representative of the Government of Canada in the administration of the Stockpile program will come to an end on June 30th, 1970, when deliveries under that program will have been completed.

At the present time, although contracts exist between the Canadian government and the four uranium producers, for delivery to the Stockpile, only one producer delivered in 1969. Total permissible deliveries under the program were 8,366,516 pounds, but only 1,509,287 pounds were delivered. The investment of the Canadian government in stockpiled uranium at year-end amounted to approximately $91,120,000, an increase of $8,706,000 during 1969.

Of the original deliveries by Canadian uranium producers to the United Kingdom Atomic Energy Authority under the 12,000 ton contract of 1962, only about 2,300 tons remain undelivered.

Activity in the Uranium Industry

In last year's Report, reference was made to an increase in both production and exploration activity. During 1969, and particularly toward the end of the year, it became evident that the depressed uranium market, and the lack of meaningful consideration of long-term contracts by the power utility industry, were beginning to exert an inhibiting influence on uranium exploration and production plans in Canada and elsewhere. A number of exploration programs have been discontinued, and plans for bringing into production at least two properties in the U.S. and one in Canada, have been suspended, pending some evidence that markets will be available on economic terms. In view of the six or seven years' time lag between finding a mine and the availability of its product as a fuel element, this slow-down could have far-reaching adverse effects for the utility industry in the longer term.

Organization and Manpower

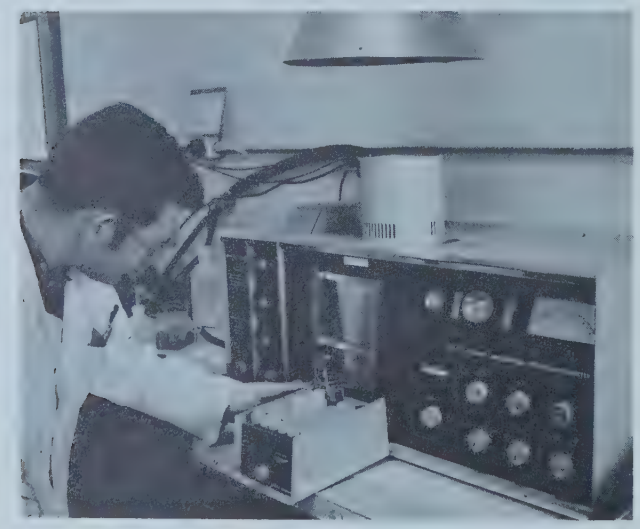
The Company's work force at December 31, 1969 numbered 20% fewer persons than at year end 1968 as shown in the following table:-

	Hourly-rated	*Salaried*	*Totals 1969*	*1968*
Beaverlodge Operation	325	166	491	737
Port Hope Refinery	183	87	270	250
Research & Development	3	47	50	49
Marketing		7	7	6
Edmonton Office		8	8	8
Head Office		24	24	26
	511	339	850	1076

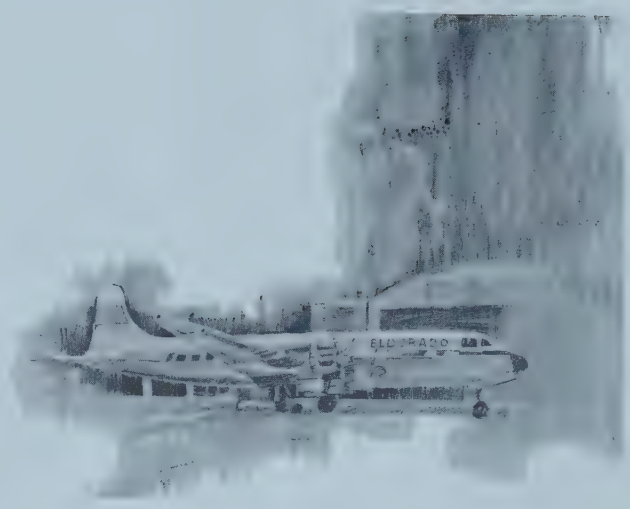
The decrease of 246 employees at Beaverlodge is attributable to the curtailment in mining operations, and the increase of 20 employees at the Port Hope refinery to the expansion of production and service departments preparatory to zirconium and UF_6 production in 1970.

The Company's total payroll in 1969 amounted to $8,729,470, as against $8,262,109 in 1968. Contributions to the Company pension and employee group insurance and medical insurance plans totalled $514,500 compared with $497,150 in 1968.

Classical methods of chemical analysis still find a place in the modern laboratory, as typified by this muffle furnace operation so common in gravimetric procedures.



Chemical analysis in Eldorado laboratories employs up-to-date instrumentation, such as this Unicam Atomic Absorption Spectrophotometer.



Eldorado Aviation Limited

This wholly-owned subsidiary provides contract air service to the parent company and to Northern Transportation Company Limited, under a Class 5 licence from the Canadian Transport Commission. With the increased exploration activity of the parent Company in 1969, flying time of the Company's aircraft was some 18% greater than in the previous year.

The DC-4 aircraft operated throughout the year on a "main-line" service between Edmonton and the parent Company's mine in northern Saskatchewan. One DC-3 was used in servicing the needs of agencies of the Northern Transportation Company throughout the MacKenzie river valley and in the western Arctic and to Alaska. The Company's second DC-3 was leased for a short period, but was also used for some months in servicing Eldorado's exploration parties. The Bell and S-55 helicopters were used to provide the necessary servicing of hydro lines and exploration parties and to undertake ice reconnaissance in the Arctic.

Mileage flown by fixed wing aircraft increased by 1% over 1968, but ton-miles were down by 13% with an increase in cost per ton-mile of some 17%.

At the end of 1969, the staff numbered 38, including two working part-time. Salaries and wages amounted to $367,209, and Company contributions to group welfare and pension plans were $36,008.

Eldorado's Role in the Canadian Uranium Story

Thirty years ago the concept of generation of electricity from nuclear sources was still regarded generally as belonging to the realm of science fiction. Today many nuclear reactors are producing and more are coming into existence so rapidly that the Western world will be hard-pressed to supply enough of the vital fuel, uranium. Canada is a major source. Since 1954 alone, uranium has brought two billion dollars into the Canadian economy, and $330,000,000 of this has been generated by Eldorado.

Prior to World War II it is probable that not more than one of every 50,000 people in the world had even heard of uranium. Even in scientific circles it was still looked upon as an element of minor interest and with limited possibilities. There was so little demand for it that there was virtually no market, even at prices of $1.50 to $2.00 per pound that were well below the cost of production. The advent of the nuclear age has changed all that, and there is growing awareness that within the next decade or so uranium will be in short supply.

The threat of a critical shortage seems paradoxical in face of the fact that the element uranium is known to occur under such a variety of geological conditions that it could probably be found in small quantities in almost any part of the world. Igneous rocks constitute 90 per cent of the Earth's crust, and all such rocks contain at least traces of uranium and its cousin element, thorium. Minute quantities are found in all the world's rivers and seas. Geologically, uranium is less abundant than copper, nickel or zinc, but more abundant than gold or silver.

This abundance is, of course, a relative thing. The fact that uranium exists in trace amounts in rock and sand and sea does not mean that vast quantities can be extracted for man's use. A deposit containing one-tenth of one per cent uranium oxide represents a concentration about 300 times the average abundance in the Earth's crust. By far the greater part of Canada's ore reserves — which are equal to more than one-third the total known reserves of the Western world — average only 0.1 per cent uranium oxide.

Generally speaking, the geology of Canada is favorable to the discovery of large and relatively rich deposits of uranium, if enough time, money and technical knowledge are applied to the search. Unlike gold, for example, which is discovered in the form of veins, threads, layers, nuggets and granules, uranium is never found in nature in the metallic state, but always occurs in combination with oxygen as oxides or silicates. The refined metal is white on fresh fracture, but takes on a bronze-like tarnish upon exposure to air. It is not quite as hard as steel, but has a density about two and one-half times that of steel. Its most outstanding physical characteristic is its radioactivity.

The Discovery of Radium

A German chemist, Klaproth, experimented with some unusual black ore that came from a mine at Joachymsthal in Bohemia, and discovered the element uranium in 1789. It remained a mere laboratory curiosity for more than a century. In 1896 Henri Becquerel learned by sheer chance that pitchblende emitted radiation not unlike the x-rays discovered by Röntgen. His published observations set the Curies on the path to an important scientific achievement.

The Curies discovered radium and its transformation product, polonium. They demonstrated that radium exists in all naturally-occurring uranium in the ratio of about one part in 3,000,000, and accounts for its radioactivity.

After it became known that radium would have important applications in the treatment of diseases, particularly tumors and cancers, as well as a number of uses in industry, demand created a fantastic value for the few grains — not grams — that could be derived annually from the only known source, the primitive mine in Bohemia. A quarter-gram was worth $50,000. When mines were developed in the United States, about 1912, radium became more readily available and the price came down to about $125,000 a gram, or $3,500,000 per ounce. Early in the 1920's a Belgian syndicate developed a mine in the Congo, and with substantial quantities of ore and new and better methods of refining it was able to stifle U.S. competition and enjoy a virtual monopoly at a price of about $70,000 a gram. This continued until the mid-1930's when Canada became a major producer of radium.

The Mine that Broke the Monopoly

In the late 1920's Gilbert Labine of Eldorado Gold Mines Limited undertook aerial prospecting in the Far North, and was rewarded with the finding not only of silver and cobalt along the eastern shore of Great Bear Lake, but of substantial quantities of pitchblende. Claims were staked and development of the mine was begun as quickly as equipment could be brought in, virtually all of it by air-lift in the small aircraft available at the time. Initial operations were directed mainly towards the silver, cobalt and gold values in the ore, but it soon became apparent the real wealth of the mine lay in the pitchblende.

A small refinery was established at Port Hope, Ontario almost 3,000 miles from the mine itself. Shipping of concentrates by air, water and rail began in 1932. The refinery made its first delivery of Canadian-

produced radium in 1933. In November, 1936, it completed production of its first ounce (28 grams) of radium, and by 1938 a monthly output of 2.5 grams was reported. The actual product of the refinery was radium bromide of 90 per cent purity, which was sent to England for accurate determination of radio-active content, final refinement, and preparation into usable form.

Even though the amounts involved seem relatively minute, the rising Canadian production broke the Belgian monopoly and the price of radium dropped rapidly. In 1940 demand had diminished, substantial inventories were on hand, labor was scarce, so Eldorado closed the Port Radium mine.

Concurrent with the production of radium through the 1930's Eldorado had sold significant quantities of silver from the mine and had developed a small market for such uranium salts as yellow and orange sodium uranate and black oxide, mainly for use in the coloring of glass and ceramics. The price of these salts ranged from $2.50 to $2.92 per pound in 1938.

Eldorado Becomes a Crown Company

An urgent need for uranium in quantity arose with the inception in 1942 of the Manhattan Project, the joint British-United States-Canadian undertaking which eventually brought forth the atomic bomb. Canada's role was to supply the uranium raw material, and the Government requested the re-opening of the Port Radium mine on an emergent basis, but gave no hint as to the reason. The mine and mill, as well as the Port Hope refinery, were in full operation by late 1942. Shipments of uranium were made, but it is believed the actual material used for the first atomic bomb was not of Canadian origin.

Late in 1943, when it became evident that the atomic bomb would be feasible, the three governments concerned decided that they should at once gain complete control of uranium resources within their respective territories. On January 28, 1944, Eldorado was expropriated and the operation was taken over by the Crown-owned Eldorado Mining and Refining (1944) Limited. Northern Transportation Company Limited, a wholly-owned subsidiary of Eldorado, was one of the assets acquired.

The Canadian Uranium Boom

While the ore of the Port Radium mine was exceedingly rich in uranium content, the deposit eventually gave out and the mine was closed down in September, 1960. In the meantime, in the late 1940's, Eldorado prospectors had found important deposits in the Lake Athabaska region, leading to development of the Beaverlodge mine which went into production in 1953. Eldorado continued to be Canada's sole producer of uranium until cold war demands created new and urgent demands which led to the discovery and development of other major deposits, especially in the Blind River and Bancroft areas of Ontario and the Beaverlodge region of Northwestern Saskatchewan.

As the Canadian government's agency, Eldorado played a major role in the development of the fledgling uranium industry, by making available its know-how in the prospecting, mining and metallurgical fields, and by negotiating and administering contracts for the sale of uranium by the private producers to agencies of the U.S. and U.K. governments. By 1958 there were 25 producing mines in Canada, and the peak out-put of almost 31,000,000 pounds of uranium oxide was attained the following year.

The amount of uranium provided by Eldorado for military purposes during World War II and up to 1954 is still classified information. However, the Company's revenue from 1944 to the end of 1954, from the sale of uranium and from sales and rentals of radium, was about $82,000,000. Its income from uranium sales in the period 1955-69 inclusive was $290,200,000, and in the same period its revenue from operation of the refinery amounted to $43,355,000.

From its original investment of $9,246,877 in acquiring ownership of Eldorado, the Canadian Government has derived a return of $34,740,000 in dividends and redemption of shares. From 1944 to the end of 1969 the Company has paid Federal taxes, provincial royalties, and grants in lieu of municipal taxes, amounting to a total of $38,138,000. The net worth of the Company at the end of 1969 was $51,000,000.

History of Eldorado Aviation

The remoteness of the Port Radium mine made air transportation essential from the beginning. In 1944 Eldorado bought its own aircraft to assist in field exploration work and the movement of personnel, perishable goods, and emergency supplies. The service was expanded and a regular schedule instituted with the inception of the Beaverlodge mine, and in 1953 the Aviation Division was incorporated as a wholly-owned subsidiary, Eldorado Aviation Limited. It provides air service at cost for Eldorado and Northern Transportation Company Limited.

The Company's transport aircraft have flown 15,629,000 miles and carried approximately 99,000 tons of freight and 153,000 passengers.

Printed in Canada
RICHARD'S PRINTING LTD.
Port Hope, Ont.